REMARKS

This is a full and timely response to the final Office Action (Paper No. 15) mailed by the U.S. Patent and Trademark Office on April 10, 2002. Claims 1-14 remain pending in the present application. Claims 15-28 have been canceled without prejudice, waiver or disclaimer. Independent claims 1 and 10 have been amended. Applicants have added the subject matter of dependent claim 7 into independent claims 1 and 10. Accordingly, Applicants respectfully submit that no further search is required. Applicants also respectfully submit that no new matter has been introduced. In view of the foregoing amendments and following remarks, reconsideration and allowance of the present application and claims are respectfully requested.

Claim Objections

Claims 15-23 stand objected to under 37 C.F.R. §1.75 as being duplicate of claims 1-9, respectively, and claims 24-28 stand objected to under 37 C.F.R. §1.75 as being duplicate of claims 10-14, respectively.

It is alleged in the Office Action that:

> When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP §706.03(k).

Applicants have canceled claims 15-28 without prejudice, waiver or disclaimer.

Rejections Under 35 U.S.C. §102

Claims 1-14 stand rejected under 35 U.S.C. §102(e) as allegedly being anticipated by U.S. Patent No. 5,920,080 to Jones. A proper rejection of a claim under 35 U.S.C. §102 requires that a single prior art reference disclose each element of the

claim. *See, e.g., W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1983). Anticipation requires that each and every element of the claimed invention be disclosed in a single prior art reference. *See e.g., In re Paulsen*, 30 F.3d 1475, 31 USPQ2d 1671 (Fed. Cir. 1994); *In re Spada*, 911 F.2d 705, 15 USPQ2d 1655 (Fed. Cir. 1990). Alternatively, anticipation requires that each and every element of the claimed invention be embodied in a single prior art device or practice. *See, e.g., Minnesota Min. & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 24 USPQ2d 1321 (Fed. Cir. 1992). The test is the same for a process. Anticipation requires identity of the claimed process and a process of the prior art. The claimed process, including each step thereof, must have been described or embodied, either expressly or inherently, in a single reference. *See, e.g., Glaverbel S.A. v. Northlake Mkt'g & Supp., Inc.*, 45 F.3d 1550, 33 USPQ2d 1496 (Fed. Cir. 1995). Those elements must either be inherent or disclosed expressly. *See, e.g., Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 7 USPQ2d 1057 (Fed. Cir. 1988); *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 2 USPQ2d 1051 (Fed. Cir. 1987). Those elements must also be arranged as in the claim. *See, e.g., Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 9 USPQ2d 1913 (Fed. Cir. 1989); *Carella v. Starlight Archery & Pro Line Co.*, 804 F.2d 135, 231 USPQ 644 (Fed. Cir. 1986). For anticipation, there must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention. *See, e.g., Scripps Clinic & Res. Found. v. Genentech, Inc.*, 927 F.2d 1565, 18 USPQ2d 1001 (Fed. Cir. 1991).

Accordingly, the single prior art reference must properly disclose, teach or suggest each element of the claimed invention.

It is alleged in the Office Action that:

Regarding claim 1, Jones discloses an organic light emitting device (10 of Fig 4) comprising an electrode (251, 202 of Fig 3, lines 14-15 of column 9, lines 39-41 of column 8) a conductive current self-limiting structure (253 and 203 of Fig 4, lines 43-49 of column 8, semiconductor layer 203 comprise barium titanate and also comprises Cr, or other metals, thus conductive) adjacent to the electrodes and an organic stack (300 of Fig 5, lines 10-12 of column 9) adjacent said electrode.

Regarding claim 2, Jones discloses that the current self-limiting structure (253 of Fig 3) resides in contact with the electrode (251 of Fig 3).

Regarding claim 3, Jones discloses that the current self-limiting structure (253 and 203 of Fig 4) applied as a patterned lattice structure over the electrode (lines 21-22 of column 7, see Fig 8).

Regarding claim 4, Jones discloses that the current self-limiting structure (203) is applied as a grid defining windows in which the electrode (202 of Fig 4) is applied.

Regarding claim 5, though Jones does not specifically mention that the current self-limiting structure (253 and 203 of Fig 4) comprises an anisotropically conductive material, it is inherent since Jones used barium titanate as the current limiting component which is an anisotropically conductive material (see US 5414403).

Regarding claim 6, Jones discloses a photoresist material in contact with the electrode (202 of fig 4) and the current self-limiting structure (203 of Fig 4, see lines 51-54 of column 8).

It is further alleged in the Office Action that:

Regarding claim 7, Jones discloses that the current self-limiting structure (203 of Fig 4) resides between the electrode (202 of Fig 4) and a conducting layer (not shown in Fig, see lines 56-59 of column 8).

Regarding claim 8 Jones discloses that the conducting layer is embedded within the current self-limiting structure (203 of Fig 4, see lines 56-59 of column 8).

Regarding claim 9, Jones discloses that the conducting layer resides over the current self-limiting structure (lines 56059 of column 8).

Claim 10 recites essentially the same limitation of claim1. Thus claim 10 is rejected as claim 1 (see rejection of claim1). In this case, Jones does not explicitly specify that the organic light emitting has increased the reliability. But it is inherent since Jones uses current self-limiting component in the device.

Claim 11 recites essentially the same limitation of claim 2. Thus claim 11 is rejected as claim 2 (see rejection of claim 2).

Claim 12 recites essentially the same limitation of claim 3. Thus claim 12 is rejected as claim 3 (see rejection of claim 3).

Claim 13 recites essentially the same limitation of claim 4.

> Thus claim 13 is rejected as claim 4 (see rejection of claim 4).
>
> Claim 14 recites essentially the same limitation of claim 5. Thus claim 14 is rejected as claim 5 (see rejection of claim 3).
>
> Rest of the pending claims 15-28, are duplicates of above claims as mentioned above, thus rejected as claims 1-14.

In response to Applicant's arguments filed on February 26, 2002, the Office Action states that:

> Applicant's second allegation is that the prior art *high dielectric material barium titanate does not allow conduction,* thus *could never be a true conductive layer in the first instance* and also alleged (see remark, page 9, lines 21-22 of fourth Response) that *nowhere in the prior art is the transition layer 203 described as a conducting structure.*
>
> Regarding this, first of all examiner wants to point out (also see rejection of claim 1) that the prior art teaches that the transition layer 203 is a semiconductor layer doped with inorganic conductive particles (see lines 45-49 of column 8). Thus prior art transition layer 203 is indeed conductive.

Applicants respectfully submit that *Jones*, in column 8, lines 45-49 states:

> [t]he transition layer 203 may also comprise a dielectric material comprising 5 to 60 percent Cr and SiO with or without low work function contaminants comprising alkali or alkaline metals such as Cs, Mg, Ba, Sc or Li alloys or mixtures of these materials. The transition layer may also comprise other organic or inorganic injector materials such as CuPc.

Applicants respectfully submit that column 8, lines 45-49 merely state that the transition layer 203 is generally a dielectric (which reiterates column 8, lines 43-44, which states that "[t]he transition layer 203 may comprise barium titanate or other high dielectric constant materials") that may also function as an injection layer.

Indeed, Applicants respectfully reiterate their position that the fact that Jones discloses that the transition layer 203 is capable of injecting holes and electrons implies that the transition layer cannot be a true conductor because such electron and hole injection occurs through tunneling, not conduction. Jones, in col. 8, lines 43-44, states that "[t]he transition layer 203 may comprise barium titanate or other high dielectric

materials." As known to those having ordinary skill in the art, a high dielectric material does not allow conduction, but merely allows tunneling. Therefore, it is clear that *Jones* fails to anticipate that their transition layer 203 could behave as a current self-limiting structure, because it could never be a true conductive layer in the first instance.

However to advance prosecution of the application, Applicants have amended independent claim 1 to recite the features of "a conducting layer," "a current self-limiting structure between said electrode and said conducting layer," and "an organic stack located adjacent said electrode and separated from said conductive current self limiting structure by said electrode."

Further, Applicants have amended independent claim 10 to include the step of "forming an organic light emitting device including an organic stack, and the step of "incorporating a current self-limiting structure within said organic light emitting device, said current self-limiting structure formed between an electrode and a conducting layer and separated from said organic stack by said electrode." Applicants have amended independent claims 1 and 10 to include the subject matter of dependent claim 7. Accordingly, Applicants respectfully request that the amendment be entered and further submit that no further search is required on the part of the Examiner.

Applicants respectfully submit that support for this feature can be found in the specification on page 10, line 21 through page 13, line 17, and with reference to FIGS. 4A, 4B, 5A and 5B.

Applicant respectfully submits that at least this feature of a current self-limiting structure located between an electrode and an additional conducting layer, where the organic stack is located adjacent the electrode and separated from the conductive current self limiting structure by the electrode is neither disclosed, taught nor suggested by *Jones*.

With respect to claim 7, the subject matter of which substantially comprises the amendment to independent claim 1 (and independent claim 10), Applicants respectfully disagree with the statement in the Office Action that "Jones discloses that the current self-limiting structure (203 of Fig 4) resides between the electrode (202 of Fig 4) and a conducting layer (not shown in Fig, see lines 56-59 of column 8)." Applicants respectfully submit that nowhere does *Jones* disclose, teach or suggest a current self-limiting material separated from an organic stack by an electrode.

Accordingly, Applicants respectfully submit that amended independent claims 1 and 10 are allowable in that they recite features and steps that are neither disclosed, taught nor suggested by *Jones*. Furthermore, Applicants respectfully submit that dependent claims 2-9 and 11-14 are allowable for at least the reason that they depend either directly or indirectly from allowable independent claims. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

CONCLUSION

For at least the foregoing reasons, Applicants respectfully request that all outstanding rejections be withdrawn and that all pending claims of this application be allowed to issue. If the Examiner has any comments regarding Applicants' response or intends to dispose of this matter in a manner other than a notice of allowance, Applicants request that the Examiner telephone Applicants' undersigned attorney.

Respectfully submitted,

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ANNOTATED VERSION OF MODIFIED CLAIMS TO SHOW CHANGES MADE

In accordance with 37 C.F.R. § 1.121, please find below the amended claims in which the inserted language is underlined ("__") and the deleted language is enclosed in brackets ("[ ]"):

1. (Three Times Amended) An organic light emitting device, comprising:

an electrode;

a conducting layer;

a [conductive] current self-limiting structure [adjacent] between said electrode and said conducting layer; and

an organic stack located adjacent said electrode and separated from said conductive current self limiting structure by said electrode.

10. (Three Times Amended) A method for increasing the reliability of an organic light emitting device, comprising the steps of:

forming an organic light emitting device including an organic stack; and

incorporating a [conductive] current self-limiting structure within said organic light emitting device, said current self-limiting structure formed between an electrode and a conducting layer and separated from said organic stack by said electrode.